

AMENDMENTS TO THE SPECIFICATION

On page 22, please replace paragraph 0087 with the following amended paragraph:

[0087] Any of a variety of fitness functions can be used, including, but not limited to, the total square error (TSE), ~~maximum~~maximum square error (XSE), total absolute error (TAE), and leave-one-out error. (See van Someren, E.P., *et al.*, Proceedings of the 2nd International Conf. On Systems Biol., Nov 4-7, 2001, Caltech (www.iesb2001.org)). The first three of these fitness functions will now be described. One of ordinary skill in the art will be able to select other appropriate fitness functions.

On pages 28, please replace paragraph 0115 with the following amended paragraph:

[0115] Additional search strategies that may be used include, for example, strategies referred to as Forw-K, Forw-reest-K, Forw-TopD-reest-K, Forw-Float-K, Back-K, Back-reest-K, Genalg-SteadyState-K, Genalg-Gen-K, and Exhaustive-K. See van Someren, E.P., *et al.*, Proceedings of the 2nd International Conf. On Systems Biol., Nov 4-7, 2001, Caltech (www.iesb2001.org), and references therein for detailed descriptions of these search strategies. According to certain embodiments of the invention the Forw-TopD-reest-*n* strategy is used. According to this method, parameters are estimated for all networks with a single connection (i.e., in which each biochemical species has a single regulatory input), and the best *D* networks are selected. Parameters are then estimated for all networks with two connections, one of which is selected from the connections in the *D* previously selected networks. This procedure is repeated, each time adding another connection to the *D* networks chosen previously. The iterations are stopped when *n* connections are found. The network and parameters with the optimum value of the fitness function are selected as the desired network model.

On pages 73-74, please replace paragraph 0253 with the following amended paragraph:

[0253] Software component 410 is intended to embody various languages and functions present on the system to enable execution of application programs that implement the inventive

methods. Such components, include, for example, language-specific compilers, interpreters, and the like. Any of a wide variety of programming languages may be used to code the methods of the invention. Such languages include, but are not limited to, C (see, for example, Press et al., 1993, Numerical Recipes in C: The Art of Scientific Computing, Cambridge Univ. Press, Cambridge, or ~~its the~~ Web site having URL ~~www.nr.com~~ for implementations of various matrix operations in C), C++, Fortran, JAVA™, various languages suitable for development of rule-based expert systems such as are well known in the field of artificial intelligence, etc. According to certain embodiments of the invention the software components include Web browser 420, e.g., Internet Explorer™ or Netscape Navigator™ for interacting with the World Wide Web.

On page 90, please replace paragraph 0301 with the following amended paragraph:

[0301] Clustering was performed using the European Bioinformatics Institute EPCLUST tool available at <http://www.ebi.ac.uk/microarray/ExpressionProfiler/ep.html>. 36.

On page 91, please replace paragraph 0307 with the following amended paragraph:

[0307] Clustering was performed using the European Bioinformatics Institute EPCLUST tool available at <http://www.ebi.ac.uk/microarray/ExpressionProfiler/ep.html>. 36.